



Tides and Currents

Introduction

Goals and Objectives - understand the reason why currents occur and how to handle them as a kayaker.

Learn to predict tides and currents and to understand the hydraulics of local currents.

Tides - Vertical movement of water due to the rotation of the earth and gravitational pull of the moon (and other factors)

Current - The resulting horizontal movement of the water.

Ebb - Current which is flowing out

Flood - Current which is flowing in

Slack - The part in the middle during which there is no movement.

Maximum (or max) - The current is going the fastest. Usually seen in knots.

Rule of thirds, or 50/90 rule - One hour after current is 90% the specified knots, two hours later it is 50%.

Kayakers paddle at 3 knots when on an average tour.

In the northwest US, current floods eastwardly into the Puget Sound region through the Straits of Juan de Fuca, and down the inside of Vancouver Island. The ebb is the opposite! (See charts and whiteboard).

How this affects the kayaker:

Trip planning - easiest to go with the current

Hydraulics - learning to enter and exit eddies (eddies are areas behind rocks and outcroppings where the flow is going the opposite way of the main current - it is filling a vacuum). (See whiteboard drawing of a rock in river).

- learning to use large eddies behind islands and friction near shore to your advantage

How to determine tides and currents:

Various books such as Captain Jack's Tide and Current Guides, Captain Jack's Current Atlas, Island Canoe chart system, various sites on line such as NOAA.

Primary and secondary current stations.

Each are found in certain areas such as Rosario Strait, Deception Pass, Admiralty Inlet.

All of the above references list the primary stations and their readings for ebb, flood, and slack. Kayakers are usually well away from the primary stations and so need to calculate the difference between the primary station and the secondary station where we may be. (Show and tell, practice).

Question for the group - on a certain day should we paddle from Anacortes to Friday Harbor or the opposite?

Notice we have to read primary stations from both San Juan Channel and Rosario Strait.

Kayak Instruction Excellence (KIX)

211 Taylor Street, Suite Five, Port Townsend, WA 98368

Phone: (360) 379-4182, (206) 669-1622

Onwatersports.com

Andrée Hurley

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Navigation Notes

Where you are, where you are going Compass

Read direction

Discuss Error Sources

Read and plot a bearing

Declination - Angle of difference

Magnetic to True + East

True to Magnetic - E

Variation (same but on land)

Deviation - Influence of objects nearby

Parts - scale, needle, base plate, housing

Nav-aid, Grid Sheet

String (knotted, distance measure(hands, knuckles))

Tide tables, charts

Watch

Chart Number One

Plot Courses, aiming off

(aim above destination with ferry angle)

Establish bearing - direction to landmark

Speed of travel, Use of check points

Piloting - Use known landmarks for references

Bearings (direction to landmark) and

Headings (direction boat is pointing)

Follow a Course (Direction you want to go)

Dead Reckoning (Position figured from speed
and time using chart and compass)

Triangulation - Three bearings, crossing

Transits/Navigational/Natural Range -

2 objects in a line, observe relation

Track = Actual

Distance Off - (Rate and Time)

Boat Traffic, shipping lanes, small boat

channels, group tactics, visibility,

legal rules of road

Speed made good.

Compass heads to magnetic, we use magnetic ring on
chart.

Longitude lines are oriented true (longitude)

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Chart reading:

Distance, direction, depth, coastal
features,
navigational aides, traffic lanes, fathoms
or feet.

One degree = Sixty nautical

One minute latitude = one nautical mile

1.15 Mile = One minute = Sixty seconds

Water depth - One fathom = Six Feet

Depth curves - soundings, shoals

Contour lines

Names, places, human made features

Shoreline composition

Lights - FL(2) 30s Rm 21m Horn(2) 60s

Color, Frequency, Height,

Noise

TVMDC?

**Buoys (color, shape, numbering,
light)**

Red right return